

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims

1. (original) A method of providing corrosion protection for a metal by coating it with an alkanethiol, comprising the steps of

a. dissolving or dispersing said alkanethiol in a solvent and preparing a solution or dispersion,

b. treating said metal with said solution or dispersion,

c. drying or curing the treated metal, and

thereby increasing the corrosion resistance of said metal without using chrome.

2. (previously presented) A process according to Claim 1 wherein said alkanethiol has the general formula, $R(\text{CH}_2)_n\text{SH}$, where R is selected from the group consisting of methyl, carboxyl, hydroxyl, formyl, and amide, and n is in the range of 7 to 21.

3. (original) A process according to Claim 1 wherein said alkanethiol is 1-octadecanethiol.

4. (previously presented) A process according to Claim 1 wherein said metal is selected from the group consisting of hot rolled and pickled steel sheet, cold-rolled steel sheet, stainless steel sheet, hot-dipped metallic coated steel sheets, electroplated metallic coated steel sheets,

aluminum sheets and aluminum alloy sheets, zinc sheets, zinc alloy sheets, copper sheets, copper alloy sheets, gold, and silver.

5. (previously presented) A process according to Claim 1 wherein said metal includes coatings of one or more layers selected from the group consisting of lead, lead alloy, nickel, nickel alloy, zinc, zinc layer, tin, and tin alloy.

6. (original) A process according to Claim 1 wherein said metal is galvanized, electro-galvanized, phosphated, resin-coated, or combinations thereof prior to coating alkanethiol.

7. (previously presented) A process according to Claim 1 wherein said solvent is selected from the group consisting of alcohols, glycols, acetone, toluene, ethyl acetate, hexane, furan, tetrahydrofuran (THF), methylene chloride, ethers, formic acid, formamide, N,N-dimethyl formamide, acetonitrile, alkanes, turpentine, benzene, ethyl or butyl acetate, petroleum ester, xylene, carbon tetrachloride, mineral spirits, and water; and combinations thereof.

8. (previously presented) A process according to Claim 7 wherein a preferred solvent is selected from the group consisting of ethanol, 1-propanol, 1-butanol, and mixtures thereof.

9. (previously presented) A process according to Claim 1 wherein the concentration of said alkanethiol is in the range of 1 to 500 millimoles per liter.

10. (previously presented) A process according to Claim 1 wherein said metal substrate is coated with said solution or dispersion by using a means selected from the group consisting of immersion, spray, painting, roll coating, and flow coating.

11. (original) A process according to Claim 1, wherein said metal is coated with said solution or dispersion by immersion.

12. (previously presented) A process according to Claim 11 wherein said metal is immersed in said solution or dispersion for a period ranging from 3 seconds to 15 minutes.

13. (previously presented) A method of providing corrosion protection for a galvanized steel by coating it with an alkanethiol, comprising the steps of

- a. dissolving or dispersing said alkanethiol in a solvent and preparing a solution or dispersion,
 - b. treating said galvanized steel with said solution or dispersion,
 - c. drying or curing the treated galvanized steel, and
- thereby increasing the corrosion resistance of said galvanized steel without using chrome.

14. (original) A process according to Claim 13 wherein said galvanized steel is electro-galvanized.

15-16 (canceled)

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17. (original) A method of coating galvanized and phosphated steel with an alkanethiol with terminal methyl group to increase the hydrophobicity of the treated surface, so that the steel becomes fingerprint free without coating it with a polymeric resin.